Sequence Listing

<110> CHUNTHARAPAI, ANAN
      GREWAL, IQBAL
      KIM, KYUNG JIN
      YAN, MINHONG

<120> TACI Antibodies and Uses Thereof

<130> P1942R1

<140> US 10/626,914
<141> 2003-07-25

<150> US 60/398,530
<151> 2002-07-25

<160> 17

<210> 1
<211> 1377
<212> DNA
<213> Homo sapien

<400> 1
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 gccgtgtgga ccaggaggag cgctttccac agggcctgtg acggggggtg 100

 gctatgagat cctgccccga agagcagtac tgggatcctc tgctgggtac 150

 ctgcatgtcc tgcaaaacca tttgcaacca tcagagccag cgcacctgtg 200

 cagccttctg caggtcactc agctgccgca aggagcaagg caagttctat 250

 gaccatctcc tgagggactg catcagctgt gcctccatct gtggacagca 300

 ccctaagcaa tgtgcatact tctgtgagaa caagctcagg agcccagtga 350

 accttccacc agagctcagg agacagcgga gtggagaagt tgaaaacaat 400

 tcagacaact cgggaaggta ccaaggattg gagcacagag gctcagaagc 450

 aagtccagct ctcccggggc tgaagctgag tgcagatcag gtggccctgg 500

 tctacagcac gctggggctc tgcctgtgtg ccgtcctctg ctgcttcctg 550

 gtggcggtgg cctgcttcct caagaagagg ggggatccct gctcctgcca 600

 gccccgctca aggccccgtc aaagtccggc caagtcttcc caggatcacg 650

 cgatggaagc cggcagccct gtgagcacat cccccgagcc agtggagacc 700

 tgcagcttct gcttccctga gtgcagggcg cccacgcagg agagcgcagt 750

 cacgcctggg acccccgacc ccacttgtgc tggaaggtgg gggtgccaca 800

 ccaggaccac agtcctgcag ccttgcccac acatcccaga cagtggcctt 850

1

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ggcattgtgt gtgtgcctgc ccaggagggg ggcccaggtg cataaatggg 900

ggtcagggag ggaaaggagg agggagagag atggagagga ggggagagag 950

aaagagaggt ggggagaggg gagagagata tgaggagaga gagacagagg 1000

aggcagaaag ggagagaaac agaggagaca gagagggaga gagagacaga 1050

gggagagaga gacagagggg aagagaggca gagagggaaa gaggcagaga 1100

aggaaagaga caggcagaga aggagagagg cagagaggga gagaggcaga 1150

gagggagaga ggcagagaga cagagaggga gagagggaca gagagagata 1200

gagcaggagg tcggggcact ctgagtccca gttcccagtg cagctgtagg 1250

tcgtcatcac ctaaccacac gtgcaataaa gtcctcgtgc ctgctgctca 1300

cagcccccga gagcccctcc tcctggagaa taaaaccttt ggcagctgcc 1350

cttcctcaaa aaaaaaaaaa aaaaaaa 1377
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<210> 2
<211> 1377
<212> DNA
<213> Homo sapien

<400> 2
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attgcacgtg tggttaggtg atgacgacct acagctgcac tgggaactgg 150

gactcagagt gccccgacct cctgctctat ctctctctgt ccctctctcc 200

ctctctgtct ctctgcctct ctccctctct gcctctctcc ctctctgcct 250

ctctccttct ctgcctgtct ctttccttct ctgcctcttt ccctctctgc 300

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ctcctctgtt tctctccctt tctgcctcct ctgtctctct ctcctcatat 400

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tgctcacagg gctgccggct tccatcgcgt gatcctggga agacttggcc 750

ggactttgac ggggccttga gcggggctgg caggagcagg gatccccct 800

cttcttgagg aagcaggcca ccgccaccag gaagcagcag aggacggcac 850

acaggcagag ccccagcgtg ctgtagacca gggccacctg atctgcactc 900
```

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agcttcagcc ccgggagagc tggacttgct tctgagcctc tgtgctccaa 950

tccttggtac cttcccgagt tgtctgaatt gttttcaact tctccactcc 1000

gctgtctcct gagctctggt ggaaggttca ctgggctcct gagcttgttc 1050

tcacagaagt atgcacattg cttagggtgc tgtccacaga tggaggcaca 1100

gctgatgcag tccctcagga gatggtcata gaacttgcct tgctccttgc 1150

ggcagctgag tgacctgcag aaggctgcac aggtgcgctg gctctgatgg 1200

ttgcaaatgg ttttgcagga catgcaggta cccagcagag gatcccagta 1250

ctgctcttcg gggcaggatc tcatagccac ccccgtccac aggccctgtg 1300

gaaagcgctc ctcctggtcc acacggctcc ggccacctcg cctgctccgg 1350

cccaggccac tcattactca ggatgct 1377
```

<210> 3
<211> 293
<212> PRT
<213> Homo sapien

<400> 3

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Met Ser Gly Leu Gly Arg Ser Arg Arg Gly Gly Arg Ser Arg Val
  1               5                  10                  15

Asp Gln Glu Glu Arg Phe Pro Gln Gly Leu Trp Thr Gly Val Ala
                 20                  25                  30

Met Arg Ser Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly
                 35                  40                  45

Thr Cys Met Ser Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg
                 50                  55                  60

Thr Cys Ala Ala Phe Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln
                 65                  70                  75

Gly Lys Phe Tyr Asp His Leu Leu Arg Asp Cys Ile Ser Cys Ala
                 80                  85                  90

Ser Ile Cys Gly Gln His Pro Lys Gln Cys Ala Tyr Phe Cys Glu
                 95                 100                 105

Asn Lys Leu Arg Ser Pro Val Asn Leu Pro Pro Glu Leu Arg Arg
                110                 115                 120

Gln Arg Ser Gly Glu Val Glu Asn Asn Ser Asp Asn Ser Gly Arg
                125                 130                 135

Tyr Gln Gly Leu Glu His Arg Gly Ser Glu Ala Ser Pro Ala Leu
                140                 145                 150

Pro Gly Leu Lys Leu Ser Ala Asp Gln Val Ala Leu Val Tyr Ser
                155                 160                 165

Thr Leu Gly Leu Cys Leu Cys Ala Val Leu Cys Cys Phe Leu Val
                170                 175                 180
```

3

```
Ala Val Ala Cys Phe Leu Lys Lys Arg Gly Asp Pro Cys Ser Cys
                185                 190                 195

Gln Pro Arg Ser Arg Pro Arg Gln Ser Pro Ala Lys Ser Ser Gln
                200                 205                 210

Asp His Ala Met Glu Ala Gly Ser Pro Val Ser Thr Ser Pro Glu
                215                 220                 225

Pro Val Glu Thr Cys Ser Phe Cys Phe Pro Glu Cys Arg Ala Pro
                230                 235                 240

Thr Gln Glu Ser Ala Val Thr Pro Gly Thr Pro Asp Pro Thr Cys
                245                 250                 255

Ala Gly Arg Trp Gly Cys His Thr Arg Thr Thr Val Leu Gln Pro
                260                 265                 270

Cys Pro His Ile Pro Asp Ser Gly Leu Gly Ile Val Cys Val Pro
                275                 280                 285

Ala Gln Glu Gly Gly Pro Gly Ala
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```

<210> 4
<211> 995
<212> DNA
<213> Homo sapien

<400> 4
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aagactcaaa cttagaaact tgaattagat gtggtattca aatccttacg  50

tgccgcgaag acacagacag cccccgtaag aacccacgaa gcaggcgaag  100

ttcattgttc tcaacattct agctgctctt gctgcatttg ctctggaatt  150

cttgtagaga tattacttgt ccttccaggc tgttctttct gtagctccct  200

tgttttcttt ttgtgatcat gttgcagatg ctgggcagt gctcccaaaa  250

tgaatatttt gacagtttgt tgcatgcttg cataccttgt caacttcgat  300

gttcttctaa tactcctcct ctaacatgtc agcgttattg taatgcaagt  350

gtgaccaatt cagtgaaagg aacgaatgcg attctctgga cctgtttggg  400

actgagctta ataatttctt tggcagtttt cgtgctaatg tttttgctaa  450

ggaagataag ctctgaacca ttaaaggacg agtttaaaaa cacaggatca  500

ggtctcctgg gcatggctaa cattgacctg gaaaagagca ggactggtga  550

tgaaattatt cttccgagag gcctcgagta cacggtggaa gaatgcacct  600

gtgaagactg catcaagagc aaaccgaagg tcgactctga ccattgcttt  650

ccactcccag ctatggagga aggcgcaacc attcttgtca ccacgaaaac  700

gaatgactat tgcaagagcc tgccagctgc tttgagtgct acggagatag  750

agaaatcaat ttctgctagg taattaacca tttcgactcg agcagtgcca  800

ctttaaaaat cttttgtcag aatagatgat gtgtcagatc tctttaggat  850
```

4

```
     gactgtattt ttcagttgcc gatacagctt tttgtcctct aactgtggaa 900

     actctttatg ttagatatat ttctctaggt tactgttggg agcttaatgg 950

     tagaaacttc cttggtttca tgattaaagt cttttttttt cctga 995
```

<210> 5
<211> 995
<212> DNA
<213> Homo sapien

<400> 5
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     tcaggaaaaa aaaagacttt aatcatgaaa ccaaggaagt ttctaccatt 50

     aagctcccaa cagtaaccta gagaaatata tctaacataa agagtttcca 100

     cagttagagg acaaaaagct gtatcggcaa ctgaaaaata cagtcatcct 150

     aaagagatct gacacatcat ctattctgac aaaagatttt taaagtggca 200

     ctgctcgagt cgaaatggtt aattacctag cagaaattga tttctctatc 250

     tccgtagcac tcaaagcagc tggcaggctc ttgcaatagt cattcgtttt 300

     cgtggtgaca agaatggttg cgccttcctc catagctggg agtggaaagc 350

     aatggtcaga gtcgaccttc ggtttgctct tgatgcagtc ttcacaggtg 400

     cattcttcca ccgtgtactc gaggcctctc ggaagaataa tttcatcacc 450

     agtcctgctc ttttccaggt caatgttagc catgcccagg agacctgatc 500

     ctgtgttttt aaactcgtcc tttaatggtt cagagcttat cttccttagc 550

     aaaaacatta gcacgaaaac tgccaaagaa attattaagc tcagtcccaa 600

     acaggtccag agaatcgcat tcgttccttt cactgaattg gtcacacttg 650

     cattacaata acgctgacat gttagaggag gagtattaga agaacatcga 700

     agttgacaag gtatgcaagc atgcaacaaa ctgtcaaaat attcattttg 750

     ggagcactgc ccagccatct gcaacatgat cacaaaaaga aaacaaggga 800

     gctacagaaa gaacagcctg gaaggacaag taatatctct acaagaattc 850

     cagagcaaat gcagcaagag cagctagaat gttgagaaca atgaacttcg 900

     cctgcttcgt gggttcttac gggggctgtc tgtgtcttcg cggcacgtaa 950

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```

<210> 6
<211> 184
<212> PRT
<213> Homo sapien

<400> 6
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     Met Leu Gln Met Ala Gly Gln Cys Ser Gln Asn Glu Tyr Phe Asp
      1               5                   10                  15

     Ser Leu Leu His Ala Cys Ile Pro Cys Gln Leu Arg Cys Ser Ser
                     20                  25                  30
```

```
Asn Thr Pro Pro Leu Thr Cys Gln Arg Tyr Cys Asn Ala Ser Val
            35              40                      45

Thr Asn Ser Val Lys Gly Thr Asn Ala Ile Leu Trp Thr Cys Leu
            50              55   .                  60

Gly Leu Ser Leu Ile Ile Ser Leu Ala Val Phe Val Leu Met Phe
            65              70   '                  75

Leu Leu Arg Lys Ile Ser Ser Glu Pro Leu Lys Asp Glu Phe Lys
            80              85                      90

Asn Thr Gly Ser Gly Leu Leu Gly Met Ala Asn Ile Asp Leu Glu
            95              100                     105

Lys Ser Arg Thr Gly Asp Glu Ile Ile Leu Pro Arg Gly Leu Glu
            110             115                     120

Tyr Thr Val Glu Glu Cys Thr Cys Glu Asp Cys Ile Lys Ser Lys
            125             130                     135

Pro Lys Val Asp Ser Asp His Cys Phe Pro Leu Pro Ala Met Glu
            140             145                     150

Glu Gly Ala Thr Ile Leu Val Thr Thr Lys Thr Asn Asp Tyr Cys
            155             160                     165

Lys Ser Leu Pro Ala Ala Leu Ser Ala Thr Glu Ile Glu Lys Ser
            170             175                     180

Ile Ser Ala Arg

<210> 7
<211> 858
<212> DNA
<213> Homo sapien

<400> 7
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 gaaaagagaa gaaatgaaac tgaaggagtg tgtttccatc ctcccacgga 100

 aggaaagccc ctctgtccga tcctccaaag acggaaagct gctggctgca 150

 accttgctgc tggcactgct gtcttgctgc ctcacggtgg tgtctttcta 200

 ccaggtggcc gccctgcaag gggacctggc cagcctccgg gcagagctgc 250

 agggccacca cgcggagaag ctgccagcag gagcaggagc ccccaaggcc 300

 ggcttggagg aagctccagc tgtcaccgcg ggactgaaaa tctttgaacc 350

 accagctcca ggagaaggca actccagtca gaacagcaga aataagcgtg 400

 ccgttcaggg tccagaagaa acagtcactc aagactgctt gcaactgatt 450

 gcagacagtg aaacaccaac tatacaaaaa ggatcttaca catttgttcc 500

 atggcttctc agctttaaaa ggggaagtgc cctagaagaa aaagagaata 550

 aaatattggt caaagaaact ggttactttt ttatatatgg tcaggtttta 600
```

```
tatactgata agacctacgc catgggacat ctaattcaga ggaagaaggt 650

ccatgtcttt ggggatgaat tgagtctggt gactttgttt cgatgtattc 700

aaaatatgcc tgaaacacta cccaataatt cctgctattc agctggcatt 750

gcaaaactgg aagaaggaga tgaactccaa cttgcaatac caagagaaaa 800

tgcacaaata tcactggatg gagatgtcac attttttggt gcattgaaac 850

tgctgtga 858
```

<210> 8
<211> 858
<212> DNA
<213> Homo sapien

<400> 8
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tttgtgcatt ttctcttggt attgcaagtt ggagttcatc tccttcttcc 100

agttttgcaa tgccagctga atagcaggaa ttattgggta gtgtttcagg 150

catattttga atacatcgaa acaaagtcac cagactcaat tcatccccaa 200

agacatggac cttcttcctc tgaattagat gtcccatggc gtaggtctta 250

tcagtatata aaacctgacc atatataaaa aagtaaccag tttctttgac 300

caatatttta ttctcttttt cttctagggc acttcccctt ttaaagctga 350

gaagccatgg aacaaatgtg taagatcctt tttgtatagt tggtgtttca 400

ctgtctgcaa tcagttgcaa gcagtcttga gtgactgttt cttctggacc 450

ctgaacggca cgcttatttc tgctgttctg actggagttg ccttctcctg 500

gagctggtgg ttcaaagatt ttcagtcccg cggtgacagc tggagcttcc 550

tccaagccgg ccttgggggc tcctgctcct gctggcagct tctccgcgtg 600

gtggccctgc agctctgccc ggaggctggc caggtcccct tgcagggcgg 650

ccacctggta gaaagacacc accgtgaggc agcaagacag cagtgccagc 700

agcaaggttg cagccagcag ctttccgtct ttggaggatc ggacagaggg 750

gctttccttc cgtgggagga tggaaacaca ctccttcagt ttcatttctt 800

ctcttttctt aaggcaagaa gtaaggcgtg actgctccct ttctgtggag 850

tcatccat 858
```

<210> 9
<211> 285
<212> PRT
<213> Homo sapien

<400> 9
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Met Asp Asp Ser Thr Glu Arg Glu Gln Ser Arg Leu Thr Ser Cys
1               5                   10                  15
```

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Leu Lys Lys Arg Glu Glu Met Lys Leu Lys Glu Cys Val Ser Ile
            20                  25                  30

Leu Pro Arg Lys Glu Ser Pro Ser Val Arg Ser Ser Lys Asp Gly
            35                  40                  45

Lys Leu Leu Ala Ala Thr Leu Leu Leu Ala Leu Leu Ser Cys Cys
            50                  55                  60

Leu Thr Val Val Ser Phe Tyr Gln Val Ala Ala Leu Gln Gly Asp
            65                  70                  75

Leu Ala Ser Leu Arg Ala Glu Leu Gln Gly His His Ala Glu Lys
            80                  85                  90

Leu Pro Ala Gly Ala Gly Ala Pro Lys Ala Gly Leu Glu Glu Ala
            95                 100                 105

Pro Ala Val Thr Ala Gly Leu Lys Ile Phe Glu Pro Pro Ala Pro
           110                 115                 120

Gly Glu Gly Asn Ser Ser Gln Asn Ser Arg Asn Lys Arg Ala Val
           125                 130                 135

Gln Gly Pro Glu Glu Thr Val Thr Gln Asp Cys Leu Gln Leu Ile
           140                 145                 150

Ala Asp Ser Glu Thr Pro Thr Ile Gln Lys Gly Ser Tyr Thr Phe
           155                 160                 165

Val Pro Trp Leu Leu Ser Phe Lys Arg Gly Ser Ala Leu Glu Glu
           170                 175                 180

Lys Glu Asn Lys Ile Leu Val Lys Glu Thr Gly Tyr Phe Phe Ile
           185                 190                 195

Tyr Gly Gln Val Leu Tyr Thr Asp Lys Thr Tyr Ala Met Gly His
           200                 205                 210

Leu Ile Gln Arg Lys Lys Val His Val Phe Gly Asp Glu Leu Ser
           215                 220                 225

Leu Val Thr Leu Phe Arg Cys Ile Gln Asn Met Pro Glu Thr Leu
           230                 235                 240

Pro Asn Asn Ser Cys Tyr Ser Ala Gly Ile Ala Lys Leu Glu Glu
           245                 250                 255

Gly Asp Glu Leu Gln Leu Ala Ile Pro Arg Glu Asn Ala Gln Ile
           260                 265                 270

Ser Leu Asp Gly Asp Val Thr Phe Phe Gly Ala Leu Lys Leu Leu
           275                 280                 285
```

<210> 10
<211> 1348
<212> DNA
<213> Homo sapien

<400> 10
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 gagggtggag ggtctcaagg caacgctggc cccacgacgg agtgccagga 100

8

```
gcactaacag taccccttagc ttgctttcct cctccctcct ttttattttc 150

aagttccttt ttatttctcc ttgcgtaaca accttcttcc cttctgcacc 200

actgcccgta cccttacccg ccccgccacc tccttgctac cccactcttg 250

aaaccacagc tgttggcagg gtccccagct catgccagcc tcatctcctt 300

tcttgctagc ccccaaaggg cctccaggca acatggggggg cccagtcaga 350

gagccggcac tctcagttgc cctctggttg agttgggggg cagctctggg 400

ggccgtggct tgtgccatgg ctctgctgac ccaacaaaca gagctgcaga 450

gcctcaggag agaggtgagc cggctgcagg ggacaggagg cccctcccag 500

aatggggaag ggtatccctg gcagagtctc ccggagcaga gttccgatgc 550

cctggaagcc tgggagaatg gggagagatc ccggaaaagg agagcagtgc 600

tcacccaaaa acagaagaag cagcactctg tcctgcacct ggttcccatt 650

aacgccacct ccaaggatga ctccgatgtg acagaggtga tgtggcaacc 700

agctcttagg cgtgggagag gcctacaggc ccaaggatat ggtgtccgaa 750

tccaggatgc tggagtttat ctgctgtata gccaggtcct gtttcaagac 800

gtgactttca ccatgggtca ggtggtgtct cgagaaggcc aaggaaggca 850

ggagactcta ttccgatgta taagaagtat gccctcccac ccggaccggg 900

cctacaacag ctgctatagc gcaggtgtct tccatttaca ccaagggggat 950

attctgagtg tcataattcc ccgggcaagg gcgaaactta acctctctcc 1000

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gctgagtata taaaggagag ggaatgtgca ggaacagagg catcttcctg 1150

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ctttgatttt acggatatct tgcttctgtt ccccatggag ctccgaattc 1250

ttgcgtgtgt gtagatgagg ggcgggggac gggcgccagg cattgttcag 1300

acctggtcgg ggcccactgg aagcatccag aacagcacca ccatctta 1348
```

<210> 11
<211> 1348
<212> DNA
<213> Homo sapien

<400> 11
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 taagatggtg gtgctgttct ggatgcttcc agtgggcccc gaccaggtct 50

 gaacaatgcc tggcgcccgt cccccgcccc tcatctacac acacgcaaga 100

 attcggagct ccatgggggaa cagaagcaag atatccgtaa aatcaaagtc 150

 tagggggtgg gaatgaaaag ggaaaagtga ggaacggggga gccaaaccca 200
```

9

```
ggaagatgcc tctgttcctg cacattccct ctcctttata tactcagctc 250

ttggctgtct ccagtatgta cccaccctgg tcttccaagc tgggagccac 300

tttttataac acaatcacag tttcacaaac cccaggaagg ttccatgtgg 350

agagaggtta agtttcgccc ttgcccgggg aattatgaca ctcagaatat 400

ccccttggtg taaatggaag acacctgcgc tatagcagct gttgtaggcc 450

cggtccgggt gggagggcat acttcttata catcggaata gagtctcctg 500

ccttccttgg ccttctcgag acaccacctg acccatggtg aaagtcacgt 550

cttgaaacag gacctggcta tacagcagat aaactccagc atcctggatt 600

cggacaccat atccttgggc ctgtaggcct ctcccacgcc taagagctgg 650

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gggaggggcc tcctgtcccc tgcagccggc tcacctctct cctgaggctc 900

tgcagctctg tttgttgggt cagcagagcc atggcacaag ccacggcccc 950

cagagctgcc ccccaactca accagagggc aactgagagt gccggctctc 1000

tgactgggcc ccccatgttg cctggaggcc ctttgggggc tagcaagaaa 1050

ggagatgagg ctggcatgag ctggggaccc tgccaacagc tgtggtttca 1100

agagtggggt agcaaggagg tggcggggcg ggtaagggta cgggcagtgg 1150

tgcagaaggg aagaaggttg ttacgcaagg agaaataaaa aggaacttga 1200

aaataaaaag gagggaggag gaaagcaagc taagggtact gttagtgctc 1250

ctggcactcc gtcgtggggc cagcgttgcc ttgagaccct ccaccctccc 1300

tcagcctcag gagaattagg ttccagtccc tctaggaagc ctcgtacc 1348
```

```
<210> 12
<211> 250
<212> PRT
<213> Homo sapien

<400> 12
  Met Pro Ala Ser Ser Pro Phe Leu Leu Ala Pro Lys Gly Pro Pro
   1               5                  10                  15

  Gly Asn Met Gly Gly Pro Val Arg Glu Pro Ala Leu Ser Val Ala
                  20                  25                  30

  Leu Trp Leu Ser Trp Gly Ala Ala Leu Gly Ala Val Ala Cys Ala
                  35                  40                  45

  Met Ala Leu Leu Thr Gln Gln Thr Glu Leu Gln Ser Leu Arg Arg
                  50                  55                  60
```

```
Glu Val Ser Arg Leu Gln Gly Thr Gly Gly Pro Ser Gln Asn Gly
                65              70                      75

Glu Gly Tyr Pro Trp Gln Ser Leu Pro Glu Gln Ser Ser Asp Ala
                80              85                      90

Leu Glu Ala Trp Glu Asn Gly Glu Arg Ser Arg Lys Arg Arg Ala
                95              100                     105

Val Leu Thr Gln Lys Gln Lys Lys Gln His Ser Val Leu His Leu
                110             115                     120

Val Pro Ile Asn Ala Thr Ser Lys Asp Asp Ser Asp Val Thr Glu
                125             130                     135

Val Met Trp Gln Pro Ala Leu Arg Arg Gly Arg Gly Leu Gln Ala
                140             145                     150

Gln Gly Tyr Gly Val Arg Ile Gln Asp Ala Gly Val Tyr Leu Leu
                155             160                     165

Tyr Ser Gln Val Leu Phe Gln Asp Val Thr Phe Thr Met Gly Gln
                170             175                     180

Val Val Ser Arg Glu Gly Gln Gly Arg Gln Glu Thr Leu Phe Arg
                185             190                     195

Cys Ile Arg Ser Met Pro Ser His Pro Asp Arg Ala Tyr Asn Ser
                200             205                     210

Cys Tyr Ser Ala Gly Val Phe His Leu His Gln Gly Asp Ile Leu
                215             220                     225

Ser Val Ile Ile Pro Arg Ala Arg Ala Lys Leu Asn Leu Ser Pro
                230             235                     240

His Gly Thr Phe Leu Gly Phe Val Lys Leu
                245             250
```

<210> 13
<211> 1239
<212> DNA
<213> Homo sapien

<400> 13
```
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 gccgtgtgga ccaggaggag cgctggtcac tcagctgccg caaggagcaa 100

 ggcaagttct atgaccatct cctgagggac tgcatcagct gtgcctccat 150

 ctgtggacag caccctaagc aatgtgcata cttctgtgag aacaagctca 200

 ggagcccagt gaaccttcca ccagagctca ggagacagcg gagtggagaa 250

 gttgaaaaca attcagacaa ctcgggaagg taccaaggat tggagcacag 300

 aggctcagaa gcaagtccag ctctcccggg gctgaagctg agtgcagatc 350

 aggtggccct ggtctacagc acgctggggc tctgcctgtg tgccgtcctc 400

 tgctgcttcc tggtggcggt ggcctgcttc ctcaagaaga gggggggatcc 450
```

11

```
ctgctcctgc cagccccgct caaggccccg tcaaagtccg gccaagtctt 500

cccaggatca cgcgatggaa gccggcagcc ctgtgagcac atcccccgag 550

ccagtggaga cctgcagctt ctgcttccct gagtgcaggg cgcccacgca 600

ggagagcgca gtcacgcctg gaccccccga ccccacttgt gctggaaggt 650

gggggtgcca caccaggacc acagtcctgc agccttgccc acacatccca 700

gacagtggcc ttggcattgt gtgtgtgcct gcccaggagg ggggcccagg 750

tgcataaatg ggggtcaggg agggaaagga ggagggagag agatggagag 800

gaggggagag agaaagagag gtggggagag gggagagaga tatgaggaga 850

gagagacaga ggaggcagaa agggagagaa acagaggaga cagagaggga 900

gagagagaca gagggagaga gagacagagg ggaagagagg cagagaggga 950

aagaggcaga gaaggaaaga gacaggcaga gaaggagaga ggcagagagg 1000

gagagaggca gagagggaga gaggcagaga gacagagagg gagagaggga 1050

cagagagaga tagagcagga ggtcggggca ctctgagtcc cagttcccag 1100

tgcagctgta ggtcgtcatc acctaaccac acgtgcaata aagtcctcgt 1150

gcctgctgct cacagccccc gagagcccct cctcctggag aataaaacct 1200

ttggcagctg cccttcctca aaaaaaaaaa aaaaaaaaa 1239
```

<210> 14
<211> 246
<212> PRT
<213> Homo sapien

<400> 14

```
Met Ser Gly Leu Gly Arg Ser Arg Arg Gly Gly Arg Ser Arg Val
 1               5                  10                  15

Asp Gln Glu Glu Arg Trp Ser Leu Ser Cys Arg Lys Glu Gln Gly
                20                  25                  30

Lys Phe Tyr Asp His Leu Leu Arg Asp Cys Ile Ser Cys Ala Ser
                35                  40                  45

Ile Cys Gly Gln His Pro Lys Gln Cys Ala Tyr Phe Cys Glu Asn
                50                  55                  60

Lys Leu Arg Ser Pro Val Asn Leu Pro Pro Glu Leu Arg Arg Gln
                65                  70                  75

Arg Ser Gly Glu Val Glu Asn Asn Ser Asp Asn Ser Gly Arg Tyr
                80                  85                  90

Gln Gly Leu Glu His Arg Gly Ser Glu Ala Ser Pro Ala Leu Pro
                95                 100                 105

Gly Leu Lys Leu Ser Ala Asp Gln Val Ala Leu Val Tyr Ser Thr
               110                 115                 120
```

12

```
Leu Gly Leu Cys Leu Cys Ala Val Leu Cys Cys Phe Leu Val Ala
            125             130             135

Val Ala Cys Phe Leu Lys Lys Arg Gly Asp Pro Cys Ser Cys Gln
            140             145             150

Pro Arg Ser Arg Pro Arg Gln Ser Pro Ala Lys Ser Ser Gln Asp
            155             160             165

His Ala Met Glu Ala Gly Ser Pro Val Ser Thr Ser Pro Glu Pro
            170             175             180

Val Glu Thr Cys Ser Phe Cys Phe Pro Glu Cys Arg Ala Pro Thr
            185             190             195

Gln Glu Ser Ala Val Thr Pro Gly Thr Pro Asp Pro Thr Cys Ala
            200             205             210

Gly Arg Trp Gly Cys His Thr Arg Thr Thr Val Leu Gln Pro Cys
            215             220             225

Pro His Ile Pro Asp Ser Gly Leu Gly Ile Val Cys Val Pro Ala
            230             235             240

Gln Glu Gly Gly Pro Gly
            245
```

<210> 15
<211> 595
<212> DNA
<213> Homo sapien

<400> 15
```
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 cagcccccac gccctgcgtc ccggccgagt gcttcgacct gctggtccgc 100

 cactgcgtgg cctgcgggct cctgcgcacg ccgcggccga aaccggccgg 150

 ggccagcagc cctgcgccca ggacggcgct gcagccgcag gagtcggtgg 200

 gcgcggggc cggcgaggcg gcgctgcccc tgcccgggct gctctttggc 250

 gcccccgcgc tgctgggcct ggcactggtc ctggcgctgg tcctggtggg 300

 tctggtgagc tggaggcggc gacagcggcg gcttcgcggc gcgtcctccg 350

 cagaggcccc cgacggagac aaggacgccc cagagccct ggacaaggtc 400

 atcattctgt ctccgggaat ctctgatgcc acagctcctg cctggcctcc 450

 tcctggggaa gacccaggaa ccaccccacc tggccacagt gtccctgtgc 500

 cagccacaga gctgggctcc actgaactgg tgaccaccaa gacggccggc 550

 cctgagcaac aatagcaggg agccggcagg aggtggcccc tgccc 595
```

<210> 16
<211> 184
<212> PRT
<213> Homo sapien

<400> 16

```
Met Arg Arg Gly Pro Arg Ser Leu Arg Gly Arg Asp Ala Pro Ala
 1               5                  10                  15

Pro Thr Pro Cys Val Pro Ala Glu Cys Phe Asp Leu Leu Val Arg
              20                  25                  30

His Cys Val Ala Cys Gly Leu Leu Arg Thr Pro Arg Pro Lys Pro
              35                  40                  45

Ala Gly Ala Ser Ser Pro Ala Pro Arg Thr Ala Leu Gln Pro Gln
              50                  55                  60

Glu Ser Val Gly Ala Gly Ala Gly Glu Ala Ala Leu Pro Leu Pro
              65                  70                  75

Gly Leu Leu Phe Gly Ala Pro Ala Leu Leu Gly Leu Ala Leu Val
              80                  85                  90

Leu Ala Leu Val Leu Val Gly Leu Val Ser Trp Arg Arg Arg Gln
              95                  100                 105

Arg Arg Leu Arg Gly Ala Ser Ser Ala Glu Ala Pro Asp Gly Asp
              110                 115                 120

Lys Asp Ala Pro Glu Pro Leu Asp Lys Val Ile Ile Leu Ser Pro
              125                 130                 135

Gly Ile Ser Asp Ala Thr Ala Pro Ala Trp Pro Pro Pro Gly Glu
              140                 145                 150

Asp Pro Gly Thr Thr Pro Pro Gly His Ser Val Pro Val Pro Ala
              155                 160                 165

Thr Glu Leu Gly Ser Thr Glu Leu Val Thr Thr Lys Thr Ala Gly
              170                 175                 180

Pro Glu Gln Gln
```

<210> 17
<211> 265
<212> PRT
<213> Homo sapien

<400> 17

```
Met Ser Gly Leu Gly Arg Ser Arg Arg Gly Gly Arg Ser Arg Val
 1               5                  10                  15

Asp Gln Glu Glu Arg Phe Pro Gln Gly Leu Trp Thr Gly Val Ala
              20                  25                  30

Met Arg Ser Cys Pro Glu Glu Gln Tyr Trp Asp Pro Leu Leu Gly
              35                  40                  45

Thr Cys Met Ser Cys Lys Thr Ile Cys Asn His Gln Ser Gln Arg
              50                  55                  60

Thr Cys Ala Ala Phe Cys Arg Ser Leu Ser Cys Arg Lys Glu Gln
              65                  70                  75

Gly Lys Phe Tyr Asp His Leu Leu Arg Asp Cys Ile Ser Cys Ala
              80                  85                  90
```

14

```
Ser Ile Cys Gly Gln His Pro Lys Gln Cys Ala Tyr Phe Cys Glu
              95                  100                 105

Asn Lys Leu Arg Ser Pro Val Asn Leu Pro Pro Glu Leu Arg Arg
              110                 115                 120

Gln Arg Ser Gly Glu Val Glu Asn Asn Ser Asp Asn Ser Gly Arg
              125                 130                 135

Tyr Gln Gly Leu Glu His Arg Gly Ser Glu Ala Ser Pro Ala Leu
              140                 145                 150

Pro Gly Leu Lys Leu Ser Ala Asp Gln Val Ala Leu Val Tyr Ser
              155                 160                 165

Thr Leu Gly Leu Cys Leu Cys Ala Val Leu Cys Cys Phe Leu Val
              170                 175                 180

Ala Val Ala Cys Phe Leu Lys Lys Arg Gly Asp Pro Cys Ser Cys
              185                 190                 195

Gln Pro Arg Ser Arg Pro Arg Gln Ser Pro Ala Lys Ser Ser Gln
              200                 205                 210

Asp His Ala Met Glu Ala Gly Ser Pro Val Ser Thr Ser Pro Glu
              215                 220                 225

Pro Val Glu Thr Cys Ser Phe Cys Phe Pro Glu Cys Arg Ala Pro
              230                 235                 240

Thr Gln Glu Ser Ala Val Thr Pro Gly Thr Pro Asp Pro Thr Cys
              245                 250                 255

Ala Gly Arg Thr Ala Pro Pro Arg Glu Gly
              260                 265
```